

**IN THE DRAWINGS**

Please amend the drawings to add reference numeral -- 55 -- to FIGS. 1 and 7 as indicated in the replacement sheets included herewith.

**REMARKS****I. Drawings**

In the office action dated June 1, 2005, the Examiner objected to the drawings as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Reference #55. In view of this requirement, the Applicant is including herewith a set of replacement sheets including FIGS. 1-11. FIGS. 1 and 7 have been amended to include reference numeral 55 as required by the Examiner. It is believe that the objection to the drawings has now been overcome. Applicant therefore respectfully requests withdrawal of the objection to the drawings.

**II. Specification**

The Examiner objected to the disclosure because of the following informalities: On page 1, paragraph 3, line 22, the Examiner stated that "sense die 112" should be "sense die 100"; On page 4, paragraph 22, line 10, the Examiner stated that "ASIC 56" should be "ASIC 57. In view of this requirement, the Applicant has amended the specification as indicated herein. It is believed that the objection to the specification has now been overcome. Applicant therefore respectfully requests withdrawal of the objection to the specification.

**III. Claim Rejections Under 35 U.S.C. § 102****Requirements for *Prima Facie* Anticipation**

A general definition of *prima facie* unpatentability is provided at 37 C.F.R. §1.56(b)(2)(ii):

A *prima facie* case of unpatentability is established when the information *compels a conclusion* that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability. (*emphasis added*)

"Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983) (citing *Soundsciber Corp. v. United States*, 360 F.2d 954, 960, 148 USPQ 298, 301 (Ct. Cl.), *adopted*, 149 USPQ 640 (Ct. Cl. 1966)), *cert. denied*, 469 U.S. 851 (1984). Thus, to anticipate the applicants' claims, the reference cited by the Examiner (i.e., Calder et al) must disclose each element recited therein. "There must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention." *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 927 F.2d 1565, 18 USPQ 2d 1001, 1010 (Fed. Cir. 1991).

To overcome the anticipation rejection, the applicants need only demonstrate that not all elements of a *prima facie* case of anticipation have been met, i.e., show that the cited reference fails to disclose every element in each of the applicants' claims. "If the examination at the initial state does not produce a prima face case of unpatentability, then without more the applicant is entitled to grant of the patent."

***Wagner et al.***

The Examiner rejected claims 1-3, 11 and 12 under 35 USC 102(e) as being anticipated by Wagner et al, hereinafter "Wagner", U.S. Patent No. 6,550,337.

With respect to claims 1 and 3, the Examiner argued that Wagner teaches a pressure transducer (100) comprising a carrier (102/103) having a central aperture (110) for receiving fluid (109) from a vessel; a sense die (101) mounted on the carrier (102/103), the sense die (101) having a first side (101c) positioned to interact with the fluid (109) received from the vessel, pressure-sensing circuitry (FIG. 2) formed on a second side (101d) of the sense die (101) and a non-metal

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covering for protecting the pressure-sensing circuitry (citing col. 7, lines 9-14 of Wagner). The Applicant respectfully disagrees with this assessment.

Applicant's amended claim 1 is directed toward a pressure transducer comprising:

- a carrier having a central aperture for receiving a fluid from a vessel;

- a sense die mounted on the carrier, the sense die having a first side positioned to interact with the fluid received from the vessel;

- pressure-sensing circuitry formed on a second side of the sense die not exposed to the fluid;

- a non-metal covering for protecting the pressure-sensing circuitry; and

- a housing having a containment area for the sense die and the pressure-sensing circuitry, wherein the carrier is mounted within a housing positioned and configured to confine the fluid, entering the housing from the vessel, to the central aperture, contacting the circuitry.

The Applicant notes that Wagner does not teach, suggest or disclose all of the claim limitations of Applicant's amended claim 1. For example, Wagner does not disclose or suggest a housing having a containment area for the sense die and the pressure-sensing circuitry or a carrier that is mounted within the housing positioned and configured to confine the fluid, entering the housing from the vessel, to the central aperture, contacting the circuitry.

The feature that the Examiner argues constitutes a carrier - reference numerals 102/103 of Wagner - does not function as a carrier as taught by Applicant's specification. Reference numeral 102 of Wagner refers to a "support structure" 102 whose function is to serve as a mechanical buffer to limit or reduce the amount of stress applied to die 101 (see Wagner, col. 5, lines 3-10), but does not provide a teaching for a carrier that is mounted within the housing positioned and configured to confine the fluid, entering the housing from the vessel, to the central aperture, contacting the circuitry. Likewise, reference numeral 103 does not provide a teaching for all of the claim limitations of a carrier as taught by Applicant's amended claim 1. Reference numeral 103 of Wagner refers only to a

"header 103" and not a "carrier" and does not mention or suggest the type of carrier and all of its functionalities as taught by Applicant's amended claim 1.

With respect to claim 2, the Examiner argued that Wagner teaches a pressure transducer (100) wherein the carrier (102/103) is mounted within a housing (107) positioned and configured to confine fluid, entering the housing from the vessel, to the central aperture, contacting the circuitry (FIG. 2). The Applicant respectfully disagrees with this assessment. Applicant's amended claim 2 refers to a carrier that is arranged to restrict a flow of the fluid to interact only with the first side and prevents the fluid from entering a containment area of the housing, wherein the carrier includes a neck portion that includes the central aperture. Such features are not disclosed, taught or suggested by Wagner. Such features are, however, taught by Applicant's specification (see paragraph 25 of Applicant's specification).

Additionally, the feature that the Examiner argues constitutes a carrier – reference numerals 102/103 of Wagner – does not function as a carrier as taught by Applicant's specification. Reference numeral 102 of Wagner refers to a "support structure" 102 whose function is to serve as a mechanical buffer to limit or reduce the amount of stress applied to die 101 (see Wagner, col. 5, lines 3-10), but does not provide a teaching for restricting the flow of the fluid to interact only with the first side and prevents the fluid from entering a containment area of the housing, wherein the carrier includes a neck portion that includes the central aperture. Likewise, reference numeral 103 does not provide a teaching of a carrier. Reference numeral 103 of Wagner refers only to a "header 103" and not a "carrier" and does not mention or suggest a "carrier" as taught by Applicant's amended claim 1 and enabled by Applicant's specification.

With respect to claim 3, which is dependent upon claim 1, the Applicant notes that claim 3 indicates that the first side of the sense die has a surface area at least equal to a cross-sectional surface area of the central aperture, the sense die being positioned on the carrier to cover the central aperture. All of the claim limitations of Applicant's claim 3 are not taught, disclosed or suggested by Wagner. The Examiner has not cited any section of Wagner that suggests otherwise.

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With respect to claim 11, the Examiner argued that Wagner teaches a pressure transducer (100) comprising a carrier (102/103) having a central aperture (110) for receiving fluid (109) from a vessel, a sense die (101) mounted on the carrier (102/103), the sense die (101) having a first side (101c) positioned to interact with the fluid (109) received from the vessel, pressure-sensing circuitry/piezoresistive resistors formed on a second side (101d) of the sense die (101) and a ceramic board (115) mounted on the carrier (102/103), the ceramic board (115) bearing conductive paths electrically connecting the pressure-sensing circuitry to external circuitry (114) (FIG. 2). The Applicant respectfully disagrees with this assessment.

Applicant's amended claim 11 is directed toward a pressure transducer that includes all of the following claim limitations:

- a carrier having a central aperture for receiving fluid from a vessel;
- a sense die mounted on the carrier, the sense die having a first side positioned to interact with the fluid received from the vessel;
- pressure-sensing circuitry formed on a second side of the sense die not exposed to the fluid;
- a ceramic board mounted on the carrier, the ceramic board bearing conductive paths electrically connecting the pressure-sensing circuitry to external circuitry; and
- at least a first and a second layer, wherein the first layer includes at least a first conductive path electrically connected to at least the pressure-sensing circuitry, and the second layer includes at least a second conductive path in contact with the first conductive path.

The Applicant notes that Wagner does not teach, disclose or suggest all of the aforementioned claim limitations, including, for example, the claim limitation of at least a first and a second layer, wherein the first layer includes at least a first conductive path electrically connected to at least the pressure-sensing circuitry, and the second layer includes at least a second conductive path in contact with the first conductive path in combination with a carrier, a sense die, pressure-sensing circuitry and a ceramic board. The Examiner is incorrect, for example, in asserting

that the board 115 of Wagner constitutes a "ceramic board" as taught by Applicant's invention. The Applicant has studied the Wagner reference and cannot find any teaching or disclosure of a "ceramic board" as taught by Applicant's invention. The same is true for the combination of all of the claim limitations as taught by Applicant's amended claim 11.

With respect to claim 12, the Examiner argued that Wagner teaches a pressure transducer (100) wherein the conductive paths are formed within a ceramic board (115) and having a first set of contacts (116) for electrically connecting to the pressure-sensing circuitry/plezoresistive resistors and a second set of contacts (114) (FIG. 2) for electrically connecting to the external circuitry (citing Col. 6, lines 26-39 of Wagner). The Applicant respectfully disagrees with this assessment and notes that the Examiner's arguments with respect to claim 12 are irrelevant in light of the fact that all of the claim limitations of Applicant's amended claim 11, from which claim 12 depends, are not taught, disclosed or suggested by Wagner.

Based on the foregoing, the Applicant has demonstrated that Wagner does not teach, disclose or suggest all of the claim limitations of Applicant's claims 1-3, 11 and 12. Wagner fails to disclose every element in each of the applicants' claims 1-3, and 11-12. The Applicant therefore submits that the rejection to claims 1-3 and 11-12 under 35 U.S.C. 102 §(e) has been traversed. The Applicant respectfully requests withdrawal of the aforementioned rejection to claims 1-3 and 11-12 under 35 U.S.C. 102 §(e).

***Park et al.***

The Examiner rejected claims 4-7 and 11-21 under 35 U.S.C. § 102(b) as being anticipated by Park et al (U.S. Patent No. 5,329,810), hereinafter "Park".

With respect to claims 4, 6, 7, 18, 20 and 21, the Examiner argued that Park teaches a pressure transducer comprising a carrier (20/22) having a central aperture for receiving fluid from a vessel (citing col. 4, lines 23-26), a sense die (50) mounted on the carrier (20/22), the sense die having a first side positioned to

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interact with a fluid received from the vessel (FIG. 1) and a gel (40) forming a bond between the first side of sense die (50) and the carrier (20/22) (citing Col. 4, lines 8-10 of Park). The Applicant respectfully disagrees with this assessment.

Regarding claims 4-6, the Applicant notes that the reference numeral 40 of Park does not refer to a gel forming a bond between the first side of the sense die and the carrier, but instead refers only to an "epoxy bond 40" to an underlying metal diaphragm (i.e., see col. 4, line 9 of Park). An epoxy is not a gel. An epoxy is a synthetic resin that cures or hardens by a chemical reaction between components that are mixed together shortly before use. A gel, on the other hand, is the initial jellylike solid phase that develops during the formation of a resin from a liquid. A gel is essentially a semisolid system composed of a network of solid aggregates in which the liquid is held. Thus, Park does not teach, disclose or suggest the use of a gel. Therefore, Park does not disclose all of the claim limitations of Applicant's claims 4-6.

Regarding claim 7, the Applicant notes that Park does not teach all of the claim limitations of Applicant's amended claim 7, including the fact that the hermetically-sealed cover is configured to allow fluctuations of pressure of a defined volume relative to pressure external to the pressure transducer. Park does not suggest, disclose or teach such a feature.

With respect to claims 5 and 19, the Examiner argued that Park teaches a pressure transducer wherein the carrier (20/22) is mounted within a housing (12) positioned and configured to configure fluid entering the housing to the central aperture (FIG. 1). The Applicant respectfully disagrees with this assessment. Claim 5 depends from claim 4, which discloses the use of a gel, which is not taught, disclosed or suggested by Park. Instead, Park disclosed an epoxy as discussed earlier. Thus, the arguments presented above against the rejection to claim 4 apply equally to the rejection to claim 5. Regarding claim 19, the Applicant notes that claim 19 depends from claim 11. All of the claim limitations of Applicant's claim 11 are not disclosed, suggested or taught by Park as will be explained momentarily.



With respect to claims 11-17 and 21, the Examiner argued that Park teaches a pressure transducer comprising a carrier (20/22) having a central aperture for receiving fluid from a vessel (citing Col. 4, lines 23-26), a sense die (50) mounted on the carrier (20/22), the sense die (50) having a first side positioned to interact with the fluid received from the vessel, pressure-sensing circuitry (col. 3, lines 50-67) formed on a second side of the sense die (50) and a ceramic board (60) mounted on the carrier (20/22), the ceramic board (60) bearing conductive paths electrically connecting the pressure-sensing circuitry to external circuitry (FIG. 1). The Applicant respectfully disagrees with this assessment.

The Applicant notes that Applicant's amended claim 11 includes at least a first and a second layer, wherein the first layer includes at least a first conductive path electrically connected to at least the pressure-sensing circuitry, and the second layer includes at least a second conductive path in contact with the first conductive path. These claim limitations are not taught by Park. Thus, all of the claim limitations of Applicant's claim 11 and any dependent claims thereof are not taught, suggested or disclosed by Park.

The Applicant reminds the Examiner that in order to succeed in setting forth a rejection to a claim or set of claims under 35 U.S.C. 102, the reference cited as a basis for the rejection (in this case, Park) must disclose each and every limitation of the rejected claims. Based on the foregoing, the Applicant submits that Park does not disclose each and every feature and claim limitation of Applicant's claims 4-7 and 11-21. The Applicant therefore submits that the rejection to claims 4-7 and 11-21 under 35 U.S.C. 102 has been traversed. The Applicant respectfully requests withdrawal of the aforementioned rejection to claims 4-7 and 11-21 under 35 U.S.C. 102.

#### **IV. Claim Rejections – 35 USC § 103**

##### **Requirements for Prima Facie Obviousness**

The obligation of the Examiner to go forward and produce reasoning and evidence in support of obviousness under 35 U.S.C. §103 is clearly defined at M.P.E.P. §2142:

The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

M.P.E.P. §2143 sets out the three basic criteria that a patent examiner must satisfy to establish a *prima facie* case of obviousness necessary for establishing a rejection to a claim under 35 U.S.C. §103:

1. some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings;
2. a reasonable expectation of success; and
3. the teaching or suggestion of all the claim limitations by the prior art reference (or references when combined).

It follows that in the absence of such a *prima facie* showing of obviousness under 35 U.S.C. §103 by the examiner (assuming there are no objections or other grounds for rejection), an Applicant is entitled to grant of a patent. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443 (Fed. Cir. 1992).

Thus, in order to support an obviousness rejection under 35 U.S.C. §103, the Examiner is obliged to produce evidence compelling a conclusion that each of the three aforementioned basic criteria has been met. If the Examiner fails to produce such a conclusion for each of the aforementioned criteria, the rejection must be withdrawn.

***Park in view of Hartemann***

The Examiner rejected claims 8-10 under 35 U.S.C. §103(a) as being unpatentable over Park in view of Hartemann (U.S. Patent No. 4,317,372).

With respect to claims 8 and 9, the Examiner argued that Park teaches a pressure transducer, but admitted that Park lacks the teaching of a cover configured to allow fluctuations of pressure of the defined volume relative to pressure external to the pressure transducer. The Examiner argued, however, that Hartemann teaches a cover (19) that allows fluctuations of pressure of the defined volume relative to pressure external to the pressure transducer (FIG. 6). The Examiner therefore asserted that it would have been obvious to one of ordinary skill in the art to modify Park to include the above limitations as taught by Hartemann in order to effectively measure a depression in relation to the atmospheric pressure (i.e., the Examiner cited Hartemann, col. 3, line 61 to col. 4, line 31).

The Applicant respectfully disagrees with this assessment. The reference numeral 19 of Hartemann does not refer to a cover that allows fluctuations of pressure of the defined volume relative to pressure external to the pressure transducer. Instead, reference numeral 19 of Hartemann refers only to a "case 19". Additionally, col. 3, line 61 to col. 4, line 31 of Hartemann refers only to ambient air and a pressure-balancing orifice but does not make mention the use of a valve in the cover having at least two positions, a first position for allowing fluctuations in pressure, and a second position for preventing fluctuations in pressure. There is no mention of in Hartemann of the cover itself having two or more such positions for allowing and preventing fluctuations in pressure. This "allowing" and "preventing" feature is simply not taught, suggested, or disclosed by Hartemann. The Examiner has not provided evidence to the contrary.

With respect to claim 10, the Examiner argued that Park teaches a pressure transducer wherein the carrier (20/22) is mounted within a housing (12) positioned and configured to confine fluid entering the housing to the central aperture (citing FIG. 1). The Applicant respectfully disagrees with this assessment and notes that

claim 10 depends from claim 9. The arguments presented above against the rejection to claim 9 apply equally to the rejection to claim 10.

The Applicant submits that the Examiner's arguments with respect to the rejection to claims 8 and 9 as being unpatentable over Park in view of Hartemann falls under the first, second and third prongs of the aforementioned prima facie obviousness test. First, the Examiner has not provided some suggestion or motivation, either in the Park and/or Hartemann references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, the Examiner has not provided a reasonable expectation of success for such a modification. Third, the Examiner has not provided the teaching or suggestion of all the claim limitations by the prior art references Park and Hartemann when combined.

The Applicant further points out to the Examiner that the language of the references may not taken out of context and combined them without motivation, in effect producing the words of claims 8-9 (and sometimes, not even the words or concepts of claims 8-9), without their meaning or context. The resultant combination would not yield the invention as claimed by claims 8-9. Claims 8-9 have been rejected under 35 U.S.C. §103(a) and no showing has been made to provide the motivation as to why one of skill in the art would be motivated to make such a combination, and further fails to provide the teachings necessary to fill the gaps in these references in order to yield all of the claim limitations of the invention as claimed.

The rejection to claims 8-9 under 35 U.S.C. §103(a) have provided no more motivation than to simply point out the individual words of the Applicant's claims among the references. Without a basis and reason for rejections to Applicant's claims and specification (e.g., without reason as to why and how the references could be combined to provide the Applicant's invention as claimed), the Examiner's analysis may be viewed as incorporating the benefit of hindsight. Hindsight cannot be a basis for providing motivation, and is not sufficient to meet the burden of sustaining a 35 U.S.C. §103(a) rejection.

Based on the foregoing, the Applicant submits that the rejection to claims 8-9 has been traversed. The Applicant therefore respectfully requests withdrawal of the rejection to claims 8-9 under 35 U.S.C. §103(a).

**Park**

The Examiner rejected claims 20 and 22 under 35 U.S.C. §103(a) as being unpatentable over Park (U.S. Patent No. 5,329,819).

Regarding the temperature and pressure of the gel, the Examiner asserted that park discloses a gel, but admitted that Park does not disclose a particular value for temperature and pressure. The Examiner argued, however, that it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a gel maintaining a temperature of -40 to 150 degrees Celsius and a pressure of -14 to 15 pounds per square inch, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the "optimum range" involves only routine skill in the art. The Applicant respectfully disagrees with this assessment.

Again, The Applicant notes that the reference numeral 40 of Park does not refer to a gel forming a bond between the first side of the sense die and the carrier, but instead refers only to an "epoxy bond 40" to an underlying metal diaphragm (i.e., see col. 4, line 9 of Park). An epoxy is not a gel. An epoxy is a synthetic resin that cures or hardens by a chemical reaction between components that are mixed together shortly before use. A gel, on the other hand, is the initial jellylike solid phase that develops during the formation of a resin from a liquid. A gel is essentially a semisolid system composed of a network of solid aggregates in which the liquid is held. Thus, Park does not teach, disclose or suggest the use of a gel.

The Examiner has thus failed to satisfy the third prong of the aforementioned prima facie obviousness test. That is, the Examiner has failed to provide for the teaching or suggestion of all the claim limitations of Applicant's claims 22 and 23 by the Park reference, because Park does not teach the use of a gel but instead teaches the use of an epoxy.

Based on the foregoing, the Applicant submits that the aforementioned rejection to claims 22-23 under 35 U.S.C. §103(a) as being unpatentable over Park has been traversed. The Applicant respectfully requests withdrawal of the rejection to claims 22-23 under 35 U.S.C. §103(a).

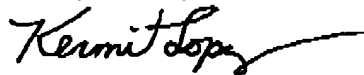
## V. Conclusion

The Applicants have amended the claims to more particularly disclose the invention claimed thereof. It is believed that such amendments do not constitute new matter, but are rather clarifying in nature. Additionally, It is believed that support for such amendments is provided within the specification, including the drawings and claims, and that the specification adequately enables such amendments.

In view of the foregoing discussion, the Applicants have responded to each and every rejection of the Official Action, and respectfully request that a timely Notice of Allowance be issued. If a telephone conference would be of assistance in advancing the prosecution of this application, the Examiner is invited to call the Applicant's attorney at the below-indicated telephone number.

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Respectfully submitted,



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